

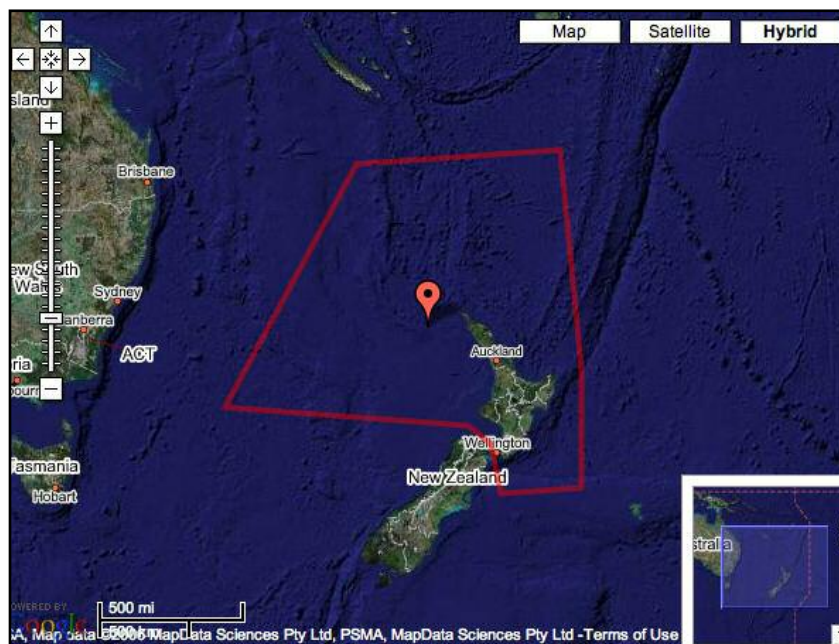


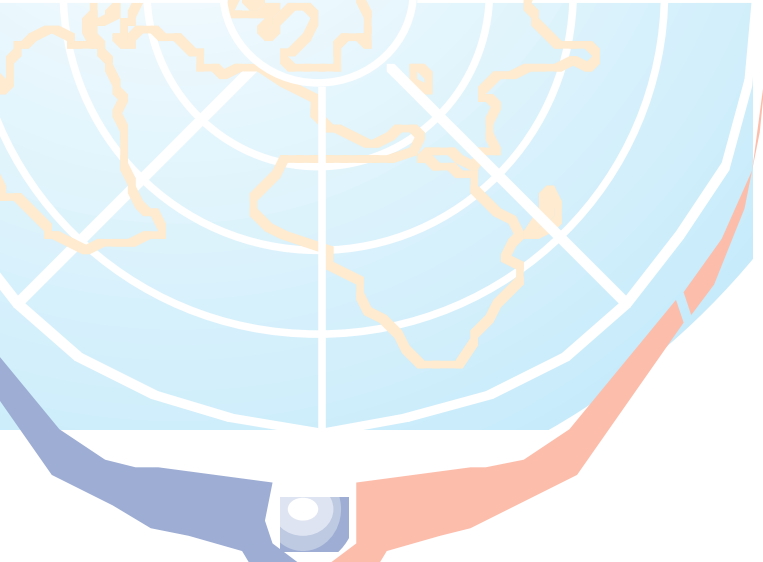
# EARTHDIVE

“The health of our oceans is intrinsically linked to the future of life on this planet”

## PRE-DIVE BRIEFING PACK

**Eco-Region 13a**  
**New Zealand - Sub-tropical**





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## 1.0 General Information

This booklet is a **pre-dive briefing pack** for the **New Zealand - Sub-tropical** eco-region. Please feel free to print it and take it with you as an 'aide memoir' for your dive. It contains all the information you need to contribute to the **EARTHDIVE** Global Dive Log.

### 1.1 Introduction

The **EARTHDIVE Global Dive Log** is a pioneering methodology that has been developed in partnership with **UNEP-WCMC** and other marine scientists from around the world. These marine scientists helped to establish **EARTHDIVE** eco-regions - areas of water that share a relatively similar climate and contain a common assembly of natural habitats and species. They then identified key indicator species for each region - an important set of marine animals whose numbers and changing population can tell us a lot about the changing state of our oceans.

**EARTHDIVE** contributors can observe and record sightings of these marine animals during their dive(s) and enter observations in their own **Global Dive Log**. **EARTHDIVE** contributors can also log evidence of key anthropogenic impacts - changes in the marine environment brought about by human activity such as pollution and overfishing. Any data you enter onto the **EARTHDIVE** website can be viewed by you and other **EARTHDIVE** contributors in the **Global Dive Log**.

The **EARTHDIVE** eco-regions span all of the world's oceans - not just those areas with warm water and coral reefs. Whether you are diving in Scotland or Saint Lucia, Connecticut or Cocos, Denmark or Dominica, your data collection is equally valid and valuable. So you don't have to wait for the next exotic dive trip - home waters are just as important!

Each eco-region also has its own types of megafauna, from dolphins to whale sharks, from whales to polar bears (if you like really cold water) and provision is also made in the Global Dive Log to record sightings of these exciting animals.

Collecting this valuable information for **EARTHDIVE** helps create the **Global Snapshot** - a valuable research tool.

This briefing pack lists the indicator species and anthropogenic impacts for the **New Zealand - Sub-tropical** eco-region - where you have chosen to dive!

Thank you for recording scientific information for **EARTHDIVE**.

### 1.2 How to record your observations in the Global Dive Log

When recording scientific information for **EARTHDIVE**, divers are recommended to follow our 7 Point Plan. You will find the use of a slate or some other method of taking notes underwater, such as a laminated fish identification card, invaluable. Always try to transfer your data to the **EARTHDIVE** website as soon as possible following your dive. Let dive buddies and dive leaders know what you are measuring, as they may be able to help with some post-dive questions on identification.

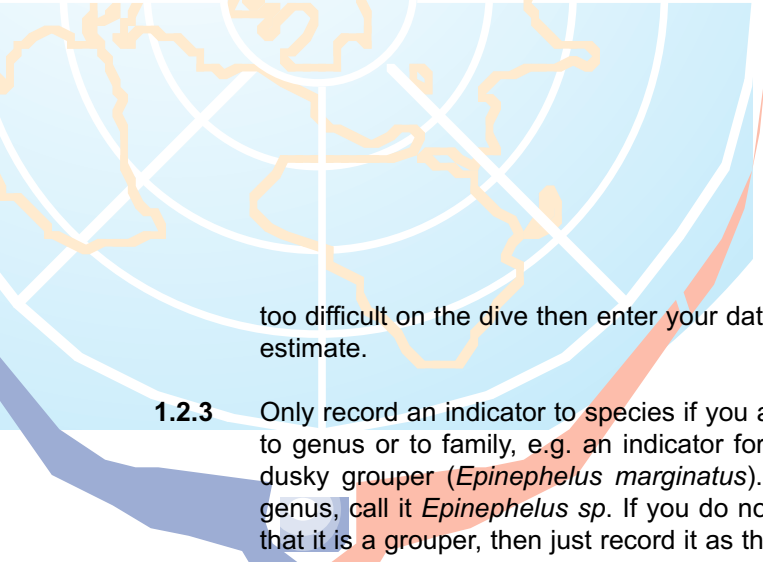
**1.2.1** Try and ensure that the time of the underwater recording session is accurately noted. The length of the session can be all of the dive or just a period during the dive e.g. 10 minutes. You may even spend periods of time recording different indicators. For example there may be a dense aggregation of long spined sea urchins, which you count for 10 or 15 minutes. On the other hand you may look for rare species such as sharks for most of the dive. Whatever your choice, the data is important so try to add the recording time in the notes for each indicator.

**1.2.2** When possible always record **actual** counts of indicator species. If this is



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too difficult on the dive then enter your data into the abundance scale in the Global Dive Log as an estimate.

- 1.2.3 Only record an indicator to species if you are 100% certain that it is that species. Otherwise record to genus or to family, e.g. an indicator for the sub-tropical Atlantic Coast of South America is the dusky grouper (*Epinephelus marginatus*). If you are uncertain of the species but recognise the genus, call it *Epinephelus* sp. If you do not have time to recognise it, or do not know it apart from that it is a grouper, then just record it as that - it's just as important!
- 1.2.4 Record as much background as possible in the notes section of the Global Dive Log for each indicator, i.e. depth of sighting, type of habitat (lower reef slope, kelp bed, sand with scattered rocky outcrops etc). Particular behaviour should also be noted - spawning behaviour in fish or invertebrates for example.
- 1.2.5 When recording always fin slowly and evenly with minimal sudden movements. Moving rapidly will disturb resident fish causing them to hide from view more quickly. By moving slowly and evenly you have more chance of seeing indicator species and recording their presence/absence more accurately. Always look carefully for particular indicators such as lobsters, which are often under overhangs or in crevices.
- 1.2.6 On your way to and from your dive site, record any observations you have made regarding the listed anthropogenic impacts for this eco-region.
- 1.2.7 Following your dive, make notes from your slate or memory and keep them in a safe place. Add any further comments within 24 hours before you lose some of the detail from your memory.

**Thank you**

## 2.0 The New Zealand - Sub-tropical Eco-Region

This region comprises the sub-tropical waters and Islands around the northern part of New Zealand's North Island. The region also includes Kermadec and Three Kings island groups. If you plan to dive in the beautiful South Island, please refer to the briefing pack for the New Zealand Temperate Eco-region.



New Zealand is made up of two main Islands, North Island and South Island, separated by the Cook Strait. The northern half of the country is influenced by the warm South Equatorial Current, while the southern half is influenced by the cooler West Wind Drift. The marine environment is diverse and includes estuaries, mudflats, mangroves, seagrass and kelp beds, reefs, seamount communities and deep-sea trenches.

The marine systems here support a rich diversity of aquatic plants, fish, bivalves, and marine mammals, including sperm whales and a diverse community of dolphins and smaller whales.

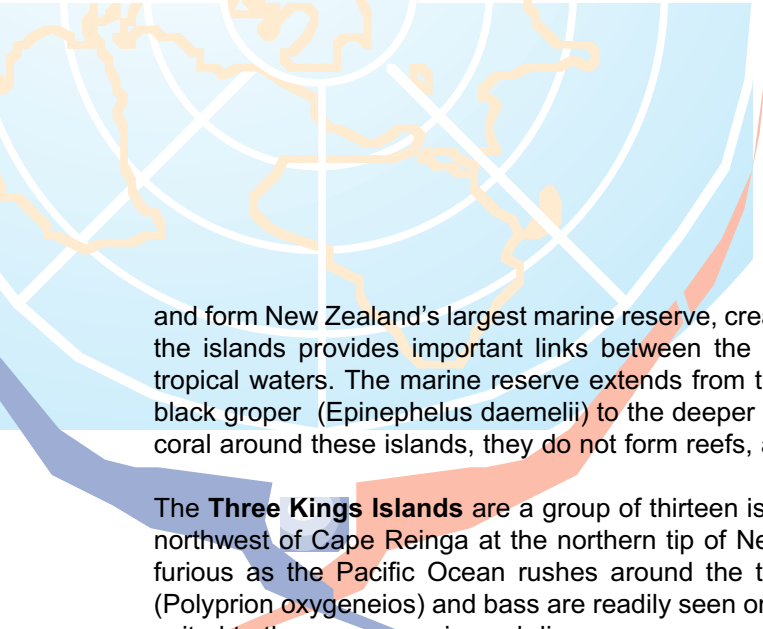
The shelf surrounding New Zealand varies in width from 150 km in the northeast and southwest, to 3,000 km on the northwest and southeast plateaus and the region is considered moderately productive. Approximately 8000 marine species have been identified in New Zealand waters, including 964 species of fish, 2000 species of molluscs (snails, shellfish, and squid), 400 species of echinoderms (urchins and starfish), and 900 species of seaweed.

New Zealand's coastal waters and habitats are generally held to be of high quality by international standards, but they are under stress in some areas, particularly near large estuarine towns and cities and the mouths of large rivers. Estuarine and marine ecosystems are also threatened by the invasion of exotic non-native species. The **Kermadec** group of islands lies some 750-1000 km northeast of New Zealand,



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and form New Zealand's largest marine reserve, created in November 1990. The marine environment around the islands provides important links between the more temperate waters of mainland New Zealand and tropical waters. The marine reserve extends from the shallows inhabited by the rare and protected spotted black groper (*Epinephelus daemeli*) to the deeper areas of the 3000 m deep Kermadec. Whilst you will find coral around these islands, they do not form reefs, as is common elsewhere in the Pacific.

The **Three Kings Islands** are a group of thirteen islands, plus many smaller islands and rocks, some 60km northwest of Cape Reinga at the northern tip of New Zealand. This area is where the tiderips are fast and furious as the Pacific Ocean rushes around the top of New Zealand to meet the Tasman Sea. Hapuka (*Polyprion oxygeneios*) and bass are readily seen on dives but given the sea conditions, this is an area better suited to the more experienced diver.

The **Cavalli Islands**, some 5km from Matauri Bay offers experienced divers an opportunity to see some spectacular marine life including sharks, whales and barracuda. Here you will find (and can dive) the wreck of the former Greenpeace ship, Rainbow Warrior. Sunk by French secret service agents in Auckland harbour in 1985, it was refloated and towed to Matauri Bay, where it now sits on the sandy bottom at 25m.

Rated by Jacques Cousteau as one of the top 10 dive sites in the world **The Poor Knights Islands** are located some 20km off the east coast of Northland and are the eroded remains of a group of volcanoes which erupted around 11 million years ago This subtropical reef system has been A marine reserve since 1981 and presents a stunning diversity of reef fish, pelagics, sponges, anemones, nudibranchs and sea weeds. Diving in good visibility, you can expect to see tropical species such as spotted black groper, mosaic moray and Lord Howe coral fish, which are rarely found elsewhere in New Zealand waters.

The extensive coastline of the lower North Island supports a wide range of habitats, and embraces spectacular marine reserves and active volcanic islands.

At the edge of the continental shelf, there is a wide range of marine life and fish species, including large schools of blue maomao, kingfish, and caverns full of huge golden snapper. Sheltered reefs and sand bottom habitats are home to a rich variety of marine life. Orange and yellow sponges, starfish corals, anemones, octopus and reef fish such as butterfish, blue cod and red mullet are also residents of these waters.

### 3.0 Indicator Species

What to look for and record in the **New Zealand - Sub-tropical** eco-region:

Rock Barren Habitats

*Loss of habitat indicates overfishing of grazing sea urchins*



All Lobsters

*Low numbers are indicators of overfishing*



Groupers (*Serranidae*)

*Low numbers are indicators of overfishing*



New Zealand Snapper (*Pagrus auratus*)

*Low numbers are indicators of overfishing*



Horse Mussel (*Atrina zelandica*)

*Low numbers indicate fishing-related and bycatch mortality.*



The International Union for Conservation of Nature and Natural Resources (IUCN) provides a listing of species that are at risk of global extinction. The 'IUCN Red List Categories and Criteria' are intended to be an easily and widely understood system and can be found at <http://www.redlist.org> The general aim of the system is to



provide an explicit, objective framework for the classification of the broadest range of species according to their extinction risk. If any of the indicator species for this Eco-Region have been classified as Critically Endangered, Endangered or Vulnerable on the list, then we have included that information below.

### 3.1 Rock Barren Habitats

The marine habitats in which marine communities live are many and varied and are created, or caused, by a number of physical factors. These factors combine to determine which animal and plant communities can co-exist within a particular habitat, with the interplay of the communities themselves playing a large determining factor.



The physical factors include elements such as temperature, depth, tides and currents, relative salinity, wave action, light or shade, sea-bottom substrate, aspect and inclination. Extreme physical factors, such as a rise in sea temperature can have a significant and sudden impact on habitats, such as the El Nino effect on the coral reefs in the Maldives, where a small rise in sea temperature caused widespread coral bleaching.

In addition to the physical factors, the resident marine life makes a significant impact on the habitat. These living (or biotic) factors include the extent to which animals and plants compete or co-operate with each other. For example, sea urchins graze a shallow band below the worst wave action and in so doing displace both the shallow seaweeds above and the stalked kelp below. This has a secondary effect in that it also clears the way for other grazers such as snails and limpets. The stalked kelp, in turn, pens the urchins in their zone, preventing them from straying, thereby ensuring that the habitat is suitably grazed.

As organisms compete for a place, either by grazing or predation, over many years -indeed many thousands of years - the interdependent communities evolve into a unit where one organism can no longer be viewed independently from the whole. That is a habitat.

Between the shallow bladder kelp zone and the kelp forest, there usually extends a barren zone where sea urchins (*echinoderms*) and other grazing organisms keep a large area of rock free from algae. **These rock barren habitats** are also known as **sea urchin habitats, the urchin zone, urchin flats, urchin barrens** or **grazed flats**.

These barren habitats are also created by grazers such as the **paua** (*Haliotis iris*) or the **Cooks turban shell** (*Cookia sulcata*), where sea urchins are absent.

Overfishing of sea urchins can lead to a depletion of these habitats. When recording the presence of these habitats, please estimate the total area, noting the depth and presence of any other marine life.



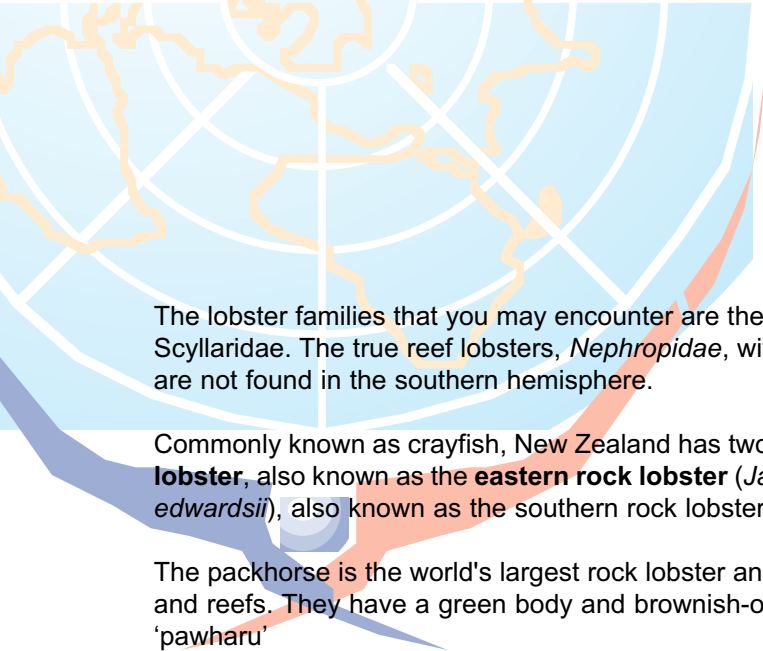
Spiny Rock Lobster (*Palinurus sp*)

### 3.2 All Lobsters

Lobsters, like shrimps and crabs, are decapods – literally meaning 10 legs - and can be found in all of the world's tropical and sub-tropical seas as well as more temperate waters. They are predatory, nocturnal animals with a vividly decorated coat. They are often numerous locally; they linger in crevices (with their long antennae sticking out) during the day and hunt small benthic organisms at night, but they also feed on organic detritus whenever they happen across it. As with all crustaceans, the lobster moults or sheds its shell to grow.

Lobsters have recently suffered a dramatic demographic decline; intensive fishing has annihilated entire populations, especially where tourism abounds.





The lobster families that you may encounter are the spiny rock lobsters, *Palinuridae* and the slipper lobsters, *Scyllaridae*. The true reef lobsters, *Nephropidae*, with their enlarged pincers (chelae) on the first pair of legs, are not found in the southern hemisphere.

Commonly known as crayfish, New Zealand has two common forms of rock lobster, **the green or packhorse lobster**, also known as the **eastern rock lobster** (*Jasus verreauxi*) and the **red or spiny rock lobster** (*Jasus edwardsii*), also known as the southern rock lobster.

The packhorse is the world's largest rock lobster and can be found in holes and crevices around rocky areas and reefs. They have a green body and brownish-orange legs. The Maori name for the packhorse lobster is 'pawharu'

Red rock lobsters are generally smaller and are widespread around New Zealand, especially in rocky coastal areas where there are plenty of places to shelter. They are most often found in groups, hiding in crevices and around reefs. The Maori name for the red lobster is 'koura'.

In addition, you may be fortunate to see the slipper lobster, *Scyllaridae*. Their antennae have evolved into thin, rounded plates, extending in front of a flattened body. They have no long spines or pincers, but instead depend on camouflage and armour for protection. They blend in well with the hard substrate upon which they are often found. By day they hide in caves and crevices and forage at night. The Spanish lobster (*Ibacus peronii*) is dull reddish and it can grow up to 23cm. The animal's flat shape enables it to partly bury in the exposed soft sediments where it lives.

Please record all sightings of lobsters, identifying individual species where possible.

### 3.3 Groupers (*Serranidae*)

When people talk about coral reefs, fishermen tend to shrug their shoulders and complain about snagged lines and torn nets. But when you talk about groupers, they suddenly sit up and pay attention. Groupers are among the economically most important fishes of the coral reef, because of their popularity as food. Yet without the coral reef there would probably be no groupers. For this reason, groupers are an extremely important indicator species and your record of their existence or non-existence during your dive tells us a lot.



*Epinephelus lanceolatus*

The giant grouper (*Epinephelus lanceolatus*) is one of the largest reef-dwelling fish. It may grow to more than 270 cm and reach weights of 300 kg. Found on reefs throughout the Indo-Pacific, it occurs from the Red Sea to Hawaii, and from New Zealand to southern Japan.

A solitary inhabitant of lagoon and seaward reefs, the giant grouper ranges from depths of a few feet to at least 45 m. Large individuals are territorial and may have a "home site" they frequent. The giant grouper patrols slowly or rests quietly close to the bottom. Its mottled coloration blends with the surroundings, providing good camouflage for this large-mouthed ambush hunter. Its diet includes spiny lobsters and other large crustaceans, reef fishes, small sea turtles, and small sharks – all are swallowed whole. The giant grouper is also known locally as the Queensland groper (sic).

Like all indicators, it is valuable if you can record the particular species you sight. However, recording the total number of groupers is just as important. The species that you may encounter in the **New Zealand - Sub-tropical** eco-region are listed below:

- Eightbar Grouper *Epinephelus octofasciatus*
- Giant Grouper *Epinephelus lanceolatus*
- Halfmoon Grouper *Epinephelus rivulatus*
- Saddletail Grouper *Epinephelus daemeli*



### 3.4 New Zealand Snapper (*Pagrus auratus*)

Strictly, or scientifically speaking, the New Zealand snapper (*Pagrus auratus*) is not actually a "snapper" at all! The snappers are a large and diverse group of robust-bodied, carnivorous fishes and belong to the family *Lutjanidae*. Like many other southern hemisphere species, the New Zealand snapper inherited its name from the northern species it most closely resembles, but is in fact a member of the family Sparidae, which are sea bream or porgies.



New Zealand Snapper (*Pagrus auratus*)

In New Zealand waters, this indicator can be found from the tip of the North Island down to the northern areas of the South Island. They are mostly encountered in deep water over offshore reefs and gravel beds, around islands and near undersea pinnacles.

The snapper is also known by the Maori name, 'tamure' and is a very attractive fish, silvery in colour, with a pink to brown upper body. The sides are sprinkled with bright blue spots that are more prominent in juveniles. The top, tail and side fins are also pink, while the bottom fins range in colour from pale-pink to creamy-white.

Snapper have been known to live 30 years - a ripe old age for fish. As they mature, they develop a prominent hump on the top of the head. The hump develops in both sexes but is more prominent in males

Snappers are among the most popular food fishes in Australia and New Zealand. They are reef fishes and live on the continental shelf at depths down to 200m, and in large bays. Juvenile fish are sometimes found in small sandy-bottomed bays and the lower reaches of estuaries.

They grow to 130cm in length and can weigh up to 20kg, but given their popularity, you are more likely to see specimens at around half of these sizes.

### 3.5 Horse Mussel (*Atrina zelandica*)

The horse or fan mussel (*Atrina zelandica*) is an endemic, filter-feeding bivalve mollusc that is particularly conspicuous because of its size and abundance. It often lives in groups that occupy 10 sq m or more, mainly on muddy-sand substrates of sheltered waters. It is widespread in the lowest intertidal and subtidal waters, including estuaries and harbours, but is also found in deeper waters of up to 50 metres off open coasts.

This filter-feeding bivalve produces waste biodeposits that are rich in organic matter and support animal aggregations that are distinctly different from, and more diverse than, those further away. Horse mussels therefore play an important role in enhancing habitat food supply and fuelling metabolism.

The horse mussel further enhances biodiversity on soft seafloors by protruding above the bottom and providing a hard surface for other creatures to settle on, particularly those that thrive on the biodeposits.

When surveying and recording these indicator molluscs, record only the presence of mussel beds and their approximate size and depth. If you can record the location by GPS, even better!







## 4.0 Anthropogenic Pressures

**EARTHDIVE** is recording five different types of anthropogenic pressures (effects resulting from the actions of humans). Collection of this data enables us to establish an ever-evolving **Global Snapshot** of our oceans.

The types of anthropogenic impacts are the same for each region and are:

- Surface Impacts paper, wood, plastic and any other man-made debris
- Boat Activity pleasure, fishing, commercial
- Subsurface Impacts litter, sediment, physical damage
- Evidence of Fishing pots, traps, discarded nets, blast damage, cyanide damage, other etc.
- Coastal Development resorts, villages, towns, distance from the dive sites etc.

Please note any information you feel is relevant and record the data in the notes section for each impact in the Global Dive Log.

**Thank you.**

## 5.0 eCORD

**EARTHDIVE** asks all scuba divers to subscribe to the principles of **eCORD** - the **EARTHDIVE** Code of Responsible Diving - and to encourage others to practice them. **eCORD** is a straightforward 7 Point Plan which will help divers to limit the anthropogenic impact of recreational diving - while at the same time making their diving experiences more rewarding and enjoyable. Be sure to incorporate the 7 points in your dive planning!

### 1. Know your limits.

Every dive is different and every diver is different. Always ensure that you dive within the limits of your training and experience, whilst taking due account of the prevailing conditions. Take the opportunity to advance and extend your skills whenever that opportunity arises. In particular, buoyancy skills can become a little rusty after any prolonged absence from the water. If you can't get pool or confined water practice before your trip, get your buoyancy control checked out by a qualified instructor on your first dive! There are many national and international dive training organisations which offer a comprehensive range of courses and instructional material beyond basic skills level. Take advantage of them!

### 2. Be aware of the marine environment and dive with care.

Not surprisingly, many dive sites are located where the reefs and walls play host to the most beautiful corals, sponges and fish - fragile aquatic ecosystems! Starting with your point of entry, be aware of your surroundings: never enter the water where there are living corals, water plants or reeds. Once underwater, it only takes one unguarded moment - a careless kick with a fin, an outstretched hand, a dragging gauge or octopus - to destroy part of this fragile ecosystem. Even fin kicks too close to the reef or sand can have an adverse effect - so dive with the utmost care. Photographers in particular need to take greater care as they strive for that best-yet shot! Don't let your dive become an adverse anthropogenic impact! And remember that these rules apply just as much to 'hard' dive sites - such as wrecks, which have become the home of diverse marine life - as well as fresh-water and other sites.

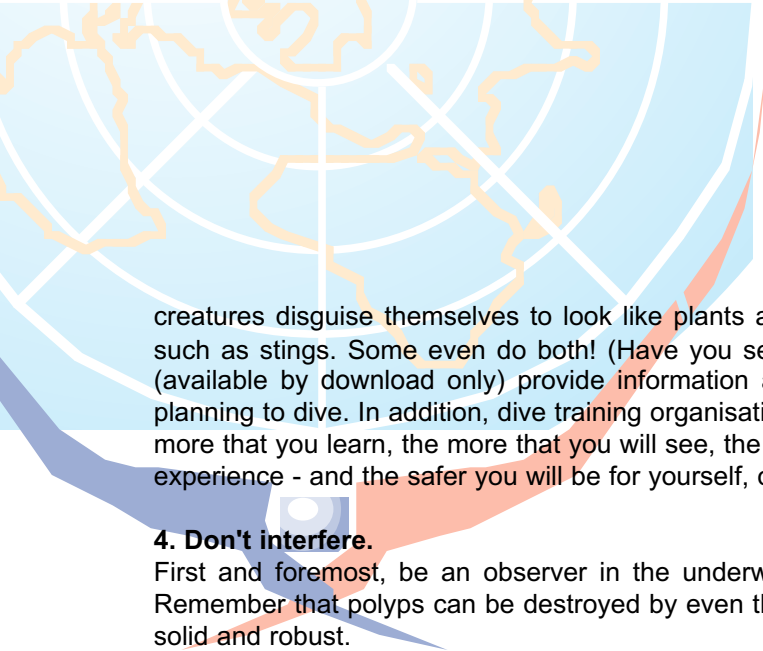
### 3. Understand and respect marine flora and fauna.

A large part of the joy of diving is in learning more about the plants and animals who live in this unique underwater environment. In order to survive and thrive, many living



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creatures disguise themselves to look like plants and inanimate objects, or develop defence mechanisms such as stings. Some even do both! (Have you seen a stonefish lately?) The **EARTHDIVE** briefing packs (available by download only) provide information about indicator species for the region in which you are planning to dive. In addition, dive training organisations run marine naturalist and identification courses. The more that you learn, the more that you will see, the more that you will derive pleasure from your underwater experience - and the safer you will be for yourself, other divers and the marine environment!

#### 4. Don't interfere.

First and foremost, be an observer in the underwater environment. As a general rule, look don't touch. Remember that polyps can be destroyed by even the gentlest contact. Never stand on coral even if it looks solid and robust.

Always resist the temptation to feed fish and discourage others from doing so. You may interfere with their normal feeding habits, damage their health and encourage aggressive behaviour. Leave only your bubbles!

#### 5. Take only what you need.

The marine environment is a valuable source of food for mankind and it is important that it remains so into the future. If you are among those divers who enjoy taking food from the sea, observe some simple rules:

- Obtain any necessary permits or licenses.
- Comply with all relevant fish and game regulations. These are designed to protect and preserve fish stocks, the environment and other users.
- Only take what you can eat. If you catch it and can't eat it, put it back.
- Never kill for the sake of 'sport'.
- Avoid spear fishing in areas populated by other divers or visitors to the area, or where you might cause collateral damage.

Don't be tempted to collect shells, corals or other mementos of your dive. If you want a souvenir, take a photograph!

#### 6. Observe and report.

As an **EARTHDIVE** member, you will be in a unique position to monitor and report on the health, biodiversity and any obvious damage to dive sites using the **EARTHDIVE** Global Dive Log. In addition, we would encourage you to report anything unusual to the appropriate local marine and environmental authorities, or if this is difficult, get your dive centre to do it for you. They have a vested interest in a healthy marine environment, and will normally be more than willing to help. Always be on the lookout for physical damage, fish stock depletion, pollution and other environmental disturbances. If the dive operation itself is causing damage -say by anchoring to the reef - then let them know how you feel in no uncertain terms!

#### 7. Get involved.

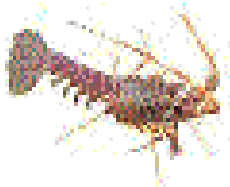
No matter where you are diving or snorkelling, be it at home or abroad, there will be at least one (and often many more) marine conservation bodies who are active in the area. Don't be afraid to approach them for information, to offer help, or just to find out what they have to offer. You will receive an enthusiastic welcome! They will provide you with lots of opportunities to contribute to marine conservation.



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### All Lobsters

How many Lobsters did you see? (tick box and/or record actual number)

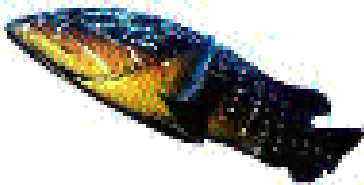
0  1 - 5  6 - 20  20 - 50  51 - 250  >250

Actual Number  (write actual number)

How long were you looking for this indicator?  (minutes)

Add your additional information here. In what type of habitat did you see this indicator? Can you record its species? What was it doing? At what depth did you see it/them?

#### Additional Information:



### Groupers (*Serranidae*)

How many Groupers did you see? (tick box and/or record actual number)

0  1 - 5  6 - 20  20 - 50  51 - 250  >250

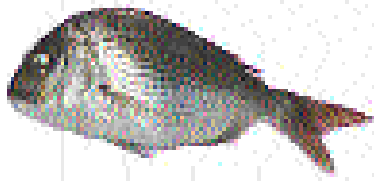
Actual Number  (write actual number)

How long were you looking for this indicator?  (minutes)

Add your additional information here. In what type of habitat did you see this indicator? Can you record its species? What was it doing? At what depth did you see it/them?

#### Additional Information:





**New Zealand Snapper (*Pagrus auratus*)**

How many Snappers did you see? (tick box and/or record actual number)

0  1 - 5  6 - 20  20 - 50  51 - 250  >250

Actual Number  (write actual number)

How long were you looking for this indicator?  (minutes)

Add your additional information here. In what type of habitat did you see this indicator? What was it doing? At what depth did you see it/them?

**Additional Information:**



**Horse Mussel (*Atrina zelandica*)**

What area (m<sup>2</sup>) of Horse Mussel beds did you see? (tick box and/or record actual area, m2)

0  1 - 5  6 - 20  20 - 50  51 - 250  >250

Actual area  (write actual area in m2)

How long were you looking for this indicator?  (minutes)

Add your additional information here. In what type of habitat did you see this indicator? At what depth did you see it/them?

**Additional Information:**



Post Dive Recording Sheet - **Anthropogenic Impacts**



**Surface Impacts**

Did you see any Surface Litter? (tick box)

Yes  No  Dont Know

If yes please record any details (plastic, wood, paper, other etc.) Please record quantity and any other relevant information.



**Boat Activity**

Did you see any Boat Activity? (tick box)

Yes  No  Dont Know

If yes please record any details (i.e fishing boats, pleasure boats, commercial vessels any other etc)

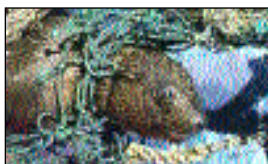


**Subsurface Impacts**

Did you see any Surface Litter? (tick box)

Yes  No  Dont Know

If yes please record any details (litter, sediment, physical damage, coral bleaching other etc).

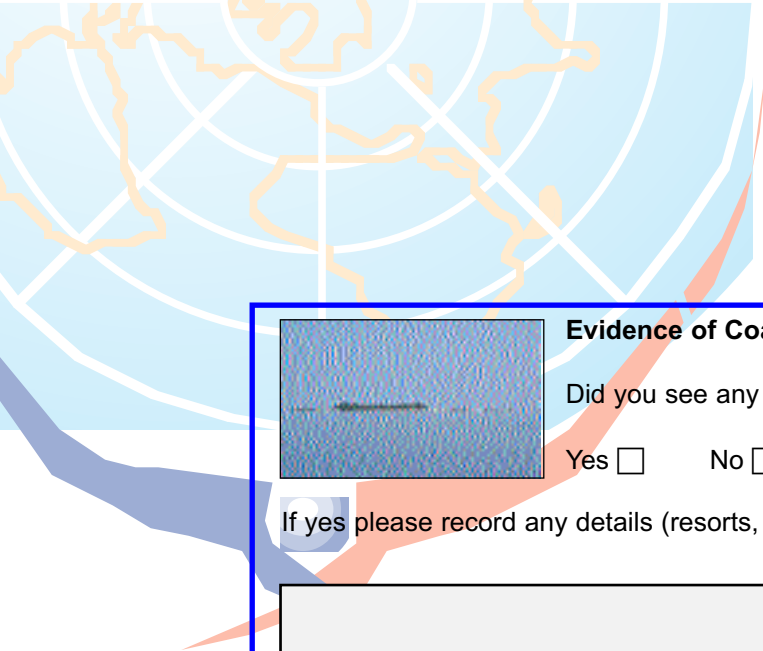


**Evidence of Fishing**

Did you see any Surface Litter? (tick box)

Yes  No  Dont Know

If yes please record any details (pots, traps, discarded nets, blast damage, cyanide damage, other etc).



**Evidence of Coastal Development**

Did you see any evidence of Coastal Development? (tick box)

Yes       No       Dont Know

If yes please record any details (resorts, villages, towns, distance form the dives site etc).

